

THE E CUBED COMPANY, L.L.C.

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Providers of
Strategic Energy
Services At
The Exponential
Interface Among

- Energy
- Economics and
- Environment

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**Re: Act 129 Fuel Switching Working Group Draft Proposals–
Reply Comments of The E Cubed Company, LLC on Behalf of the
Joint Supporters – Docket No. M-00051865**

Dear Ms. Moury:

The E Cubed Company, LLC, a participant in the Working Group that issued the draft proposal, and the Joint Supporters, a voluntary association of companies and associations, including providers and installers of Micro-combined heat and power/combined heat and power systems, and end-users, is pleased to provide the attached Reply Comments regarding the Comments made by various parties to this Docket involving the Fuel Switching Working Group Draft Proposals submitted on January 25th.

We wish to thank you for the opportunity to provide you with our Reply Comments regarding the above and would be pleased to answer any questions you may have regarding them.

Very Truly Yours,



Ruben S. Brown, M.A.L.D.
President, The E Cubed Company,
LLC

On behalf of The Joint Supporters who for this purpose include:

Climate Energy, LLC
ECR International, Inc.
Energy Concepts Engineering, PC
Energy Spectrum, Inc.
Yankee Scientific, Inc.

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THE E CUBED COMPANY, L.L.C.

Act 129 Fuel Switching Working Group Draft Proposals

Docket No. M-00051865 Reply Comments

The E Cubed Company, LLC on Behalf of the Joint Supporters

Combined heat and power technology (CHP) has been singled out by the US Department of Energy as one of the most important technologies available today in the effort to not only reduce the effects of green house gasses and other emissions, but also to promote economic growth and to obtain energy independence for the US. In a US DOE sponsored report released in December 2008 (“Combined Heat and Power – Effective Energy Solutions for a Sustainable Future”) it states the following:

“Combined heat and power (CHP) solutions represent a proven and effective near-term energy option to help the United States enhance energy efficiency, ensure environmental quality, promote economic growth, and foster a robust energy infrastructure.” (Executive Summary, page 3)

The report then goes on to also state that:

“In addition, CHP is one of the few options in the portfolio of energy alternatives that combines environmental effectiveness with economic viability and improved competitiveness.” (Executive Summary, page 3)

While previously this technology was only available to larger commercial and industrial consumers and multi-family residential properties, recent advancements now permit the benefits of CHP systems to be made available to single-family residences as well. Commonly referred to as Micro-combined heat and power (Micro-CHP), these systems are widely available in Japan and in Europe, where well over 100,000 systems have been installed by various manufacturers.

What makes this so exciting is that these systems not only achieve the same benefits that high efficiency heating systems achieve, reduced fuel use and reduced emissions, they also generate 4,000 to 5,000 kWh of electricity for the same amount of fuel use as a heating only appliance. This has never been achieved before at the single-family residential level. Given all the concerns about emissions, energy

security and the need to develop new industries here in the US, this is hugely significant.

Available in this country now for just a few years, (manufactured in the US in New York and in Wisconsin), they are already proving to be exceptionally popular with those who have installed them. It was with some distress therefore that we read the February 16 comments of Metropolitan Edison with regards to such systems.

Metropolitan Edison contends that while “elevated incentive levels” benefit participants they can create a “considerable negative effect” on those that do not. While that might perhaps be true in some cases, that is not the case with Micro-CHP. As noted earlier Micro-CHP/CHP systems offer numerous advantages and many of these advantages are enjoyed not just by the owners of such systems but by society as well. Societal benefits include reduced emission levels, reduced need for transmission and distribution system infrastructure upgrades and the attendant rate increases required to pay for them, reduced system congestion charges and the ability to participate in demand response programs, thereby reducing the likelihood of brownouts/blackouts. In addition, societal energy savings can be as much as 25-35 percent.

Metropolitan Edison also questions the estimated cost of Micro-CHP systems used in the analysis performed, quoting from a single article the cost of a single installation. As Metropolitan Edison is well aware that installation costs for furnaces, boilers and other similar types of systems vary greatly and are dependent on many factors. As with most systems of this type consumers can choose from various options that could impact the cost of the system. Even in the case of two otherwise identical systems, total installed costs can vary greatly depending on the particular installation requirements of the home involved. Finally, as these systems are sold by independent businesses their own cost of business and margin requirements will influence the final installed cost as well.

As to the need for an “inventory” of potential sites, we see this as merely a delaying tactic. Micro-CHP systems, unlike solar and wind systems, for example, can be installed in just about any home that is equipped with a furnace or boiler. There are approximately 4.8 million residences in Pennsylvania, a large majority of which are 1-2 housing units. These are mostly central warm air or steam or hot water heating systems. Using a regular high efficiency boiler or furnace along with a small generator and related electronic controls, the footprint of Micro-CHP systems increases by only about the size of a legal sized three-drawer file cabinet. Therefore, wherever there is natural gas service available, these systems can be installed.

Finally, MetEd also express concern that the proposal calls for the Micro-CHP incentive to be 100% of the cost of the system, roughly \$18,000 per installation. We can understand to some extent that concern, given the size of this incentive versus the other incentives under consideration. We wish to point out however that as an emerging technology, Micro-CHP systems will for a time have higher costs than is experienced by more established technologies. Given the natural progression of reduced costs that always occurs as technologies mature and become more widely

used, we believe a significant incentive for Micro-CHP is warranted as a way to “jump-start” its acceptance by the general public.

However, while we believe that the size of the incentive is justified given the benefits offered by Micro-CHP, as outlined above, we also feel that given those obvious benefits that the “tipping point” needed to encourage the adoption of this technology is less than the total cost of the installed cost of the system.

Instead, based on our experience in the market we suggest an incentive of \$7,500 or less than 50% of the estimated of the \$18,000 installation. Such an incentive would result in an average payback of around six years. It would also allow the program to support a greater number of participants while still being large enough relative to the cost of the system to hold down the number of “free riders”.